Regency® COMMUNICATIONS INC.

PRELIMINARY SERVICE MANUAL

RF POWER AMPLIFIER

MODEL BAH 100

1227 S. PATRICK DR.
SATELLITE BEACH, FLA.

0300-4091-700

PRINTED IN U.S.A.

10-81

FINAL TEST PROCEDURE BAH-100

A. Power Amp Alignment

I. Test Set-up

A. Equipment

1. RF Power Oscillator or Transmitter
2. 156 MHz Circulator
3. Thruline Wattmeter & 50W 100-250 MHz Element
4. Thruline Wattmeter & 500W 100-250 MHz Element
5. 200W - 50Ω - RF Attenuator or Load
6. 156 MHz Notch Filter
7. Spectrum Analyzer
8. DC Power Supply
9. DC Voltmeter 0-20 VDC
10. DC Power Supply 13.6 VDC - 25A
11. Amp Meter 0-25 Amp
12. Frequency Counter 156 MHz
13. BAH-100 Power Amp
14. Blade Type Tuning Tool

REV.	CHANGE	DATE
A		1-26-77

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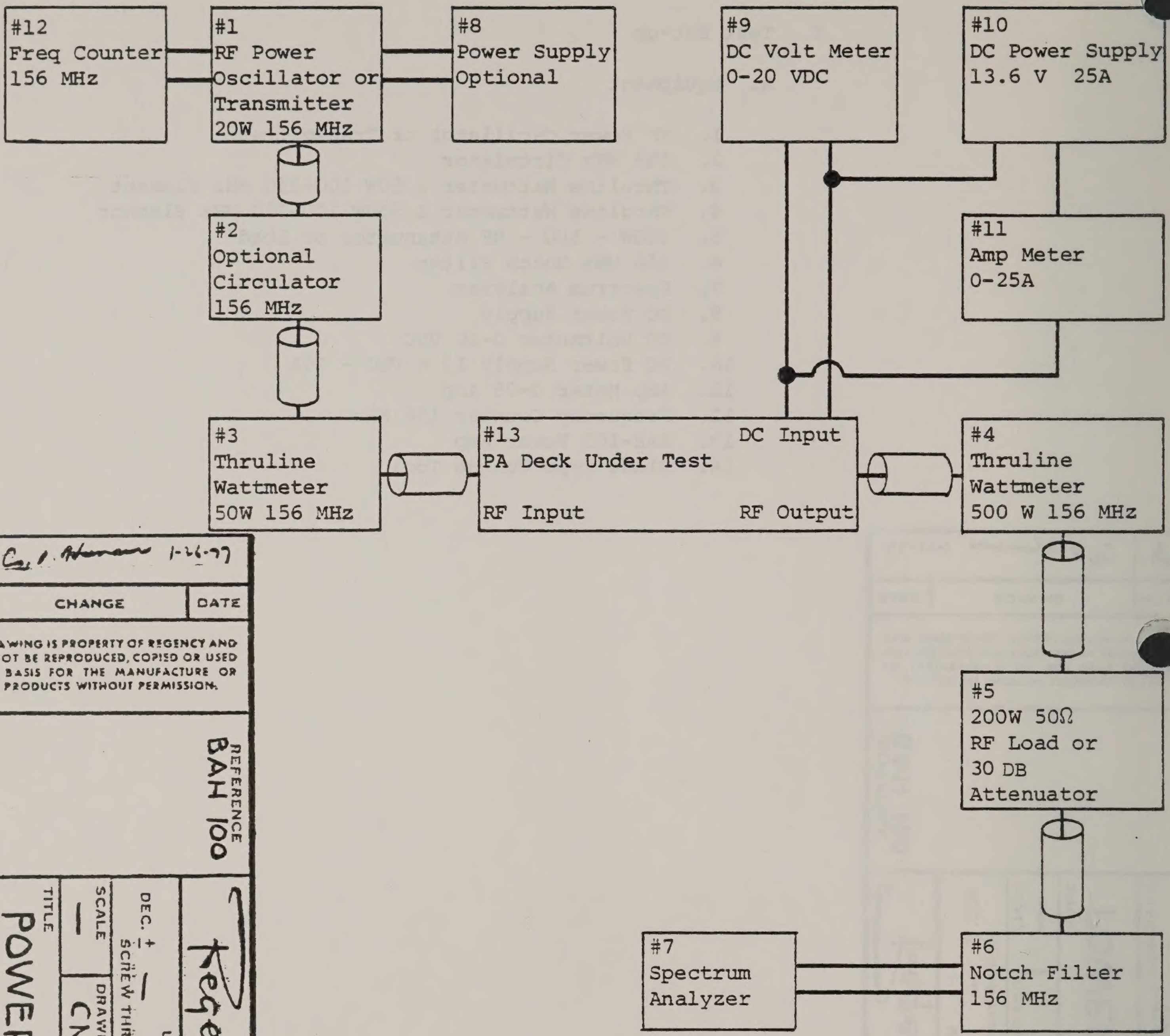
REV. A

B. Test Interconnection Diagram



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TP 14-040 REV A

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II. Tune Up Procedure

A. Preliminary Presets

1. Connect the test equipment as shown on Part I of this procedure.
2. Preset the tuning controls C201, C202 and C224 per the tuning chart (Fig. 1).

B. Tune Up and Checkout Procedure

1. With the BAH-100 switch in the off position and the power supply (#10) set to 0 VDC, key the transmitter (#1) to check series pass mode operation of the deck. Set the input wattmeter (#3) for 20W forward power and measure reflected power. This level should not exceed 2.0W reflected. The output wattmeter (#4) should read greater than 15 watts.

2. Turn off the transmitter (#1) and set the DC power supply (#10) to 13.6 VDC. Switch on the BAH-100 SW101 and the green on-off lamp CR301 should light (CR302 should remain off).

   Note: Initial tune up requires the grounding of TP1. If TP1 is not jumpered to ground the relays will chatter until an acceptable input VSWR is achieved.

3. Jumper TP1 to ground (Junction of Q101, CR302 - a short TP wire protrudes from the back of the LED Bd.) This will cause CR302 to light (Red Trans Light) and both relays RL101, & RL102 to energize.

4. Key the transmitter (#1) and tune C202 for maximum power on the output wattmeter (#4). Then tune C201, and finally tune C224 in the same manner.

5. Then tune C224(CW) to limit final amplifier imput current (#1) to 15 amps or less.

6. Measure the power indicated on the input wattmeter (#3) in the reflected mode tune C201 for minimum reflected power. The reflected power should not exceed 1.5W (with a BTH or MCH radio this corresponds to maximum forward power on the input wattmeter).

7. Retune C202 for maximum output power (#4) and C201 for minimum reflected power on input wattmeter (#3). Reset C224 for 15 amps or less. The output power (#4) should exceed 100W minimum the input reflected power should be less than 1.5W.

8. Harmonics as measured on the spectrum analyzer(#7) with the notch filter (#6) tuned to the carrier frequency should be less than 50 DB with the case off and greater than 63 DB with the case on.

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REV. A

9. Unkey the transmitter (#1) and remove the jumper cable from the BAH-100. Key the transmitter and the BAH-100 should automatically key; the red lamp CR302 will light and the green light will go out(CR301). Unkey the transmitter (#1).

10. Remove the RF output cable from the BAH-100 and key the transmitter; the green lamp will remain on and the red lamp off.

This completes the test of the unit and may be used for any frequency from 150 MHz to 174 MHz.

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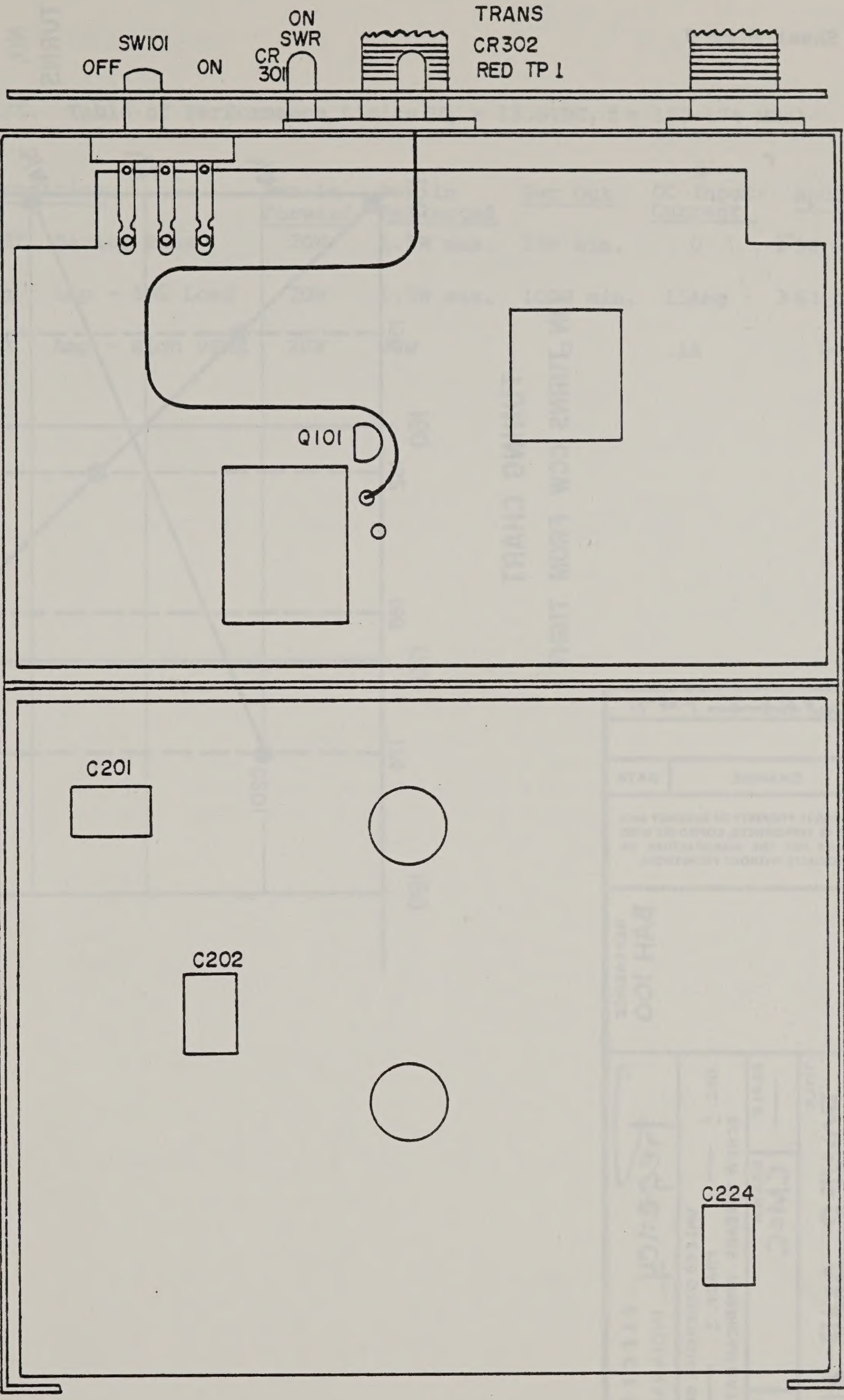

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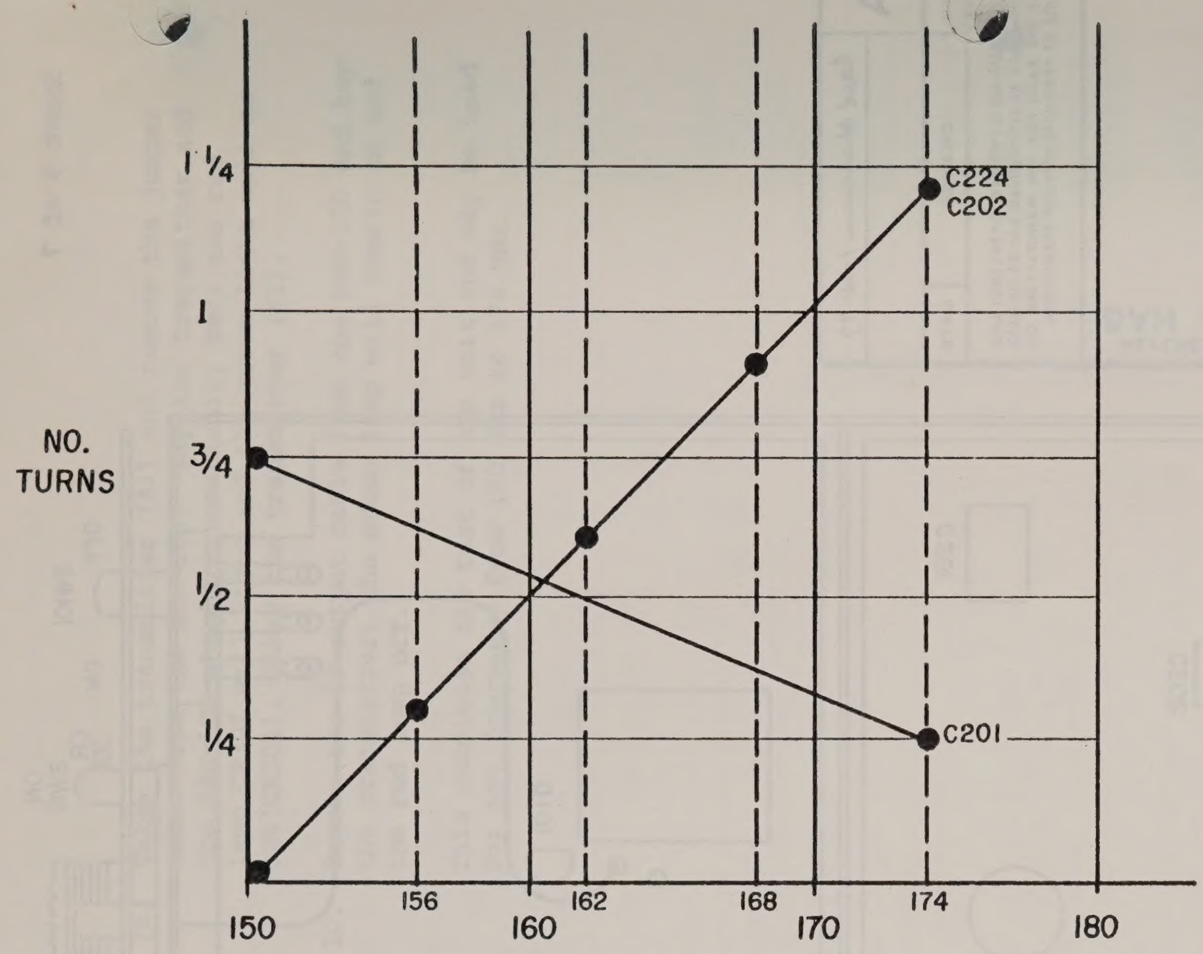
TP 14-040 REV A



TUNING CHART
(IN TURNS CCW FROM TIGHT)

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III. Table of Performance Limits (V_S = 13.6VDC, f = 150-174 MHz)

Condition		Pwr in Forward	Pwr in Reflected	Pwr Out	DC Input Current	Spurs
Off	Series Pass	20W	1.5W max.	15W min.	0	>56 DB
On	Amp - 50Ω Load	20W	1.5W max.	100W min.	15Amp	>63 DB
On	Amp - High VSWR	20W	20W	0	.1A	—

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REV. A

TP 14-040 REV. A

PARTS LIST LED BOARD

LOCATION	DESCRIPTION	PART NO.
RESISTORS		
R301	res comp/film 470 ohm ¼W10%	4701-0471-042
R302	res comp/film 470 ohm ¼W10%	4701-0471-042
DIODES		
CR301	LED (Grn)	4810-1299-300
CR302	LED (red)	4810-1282-900

PARTS LIST PA BOARD

CAPACITORS		
C201	undwd T101 120pf 10% 500V (mica)	1522-0121-022
C202	undwd T101 60pf 10% 500V (mica)	1522-0600-002
C203	10-80pf undwd pc-405 (trim)	1517-0000-040
C204	4-60pf EL404 PC (trim)	1517-0000-002
C205	undwd T101 1000pf 10% 350V (mica)	1522-0102-002
C206	undwd T101 1000pf 10% 350V (mica)	1522-0102-002
C207	undwd T101 1000pf 10% 350V (mica)	1522-0102-002
C208	100 mf a6V Type U	1513-0101-002
C209	.1mf 20% 12V BC-12	1502-0104-005
C210	undwd T101 500pf 10% 500V (mica)	1522-0501-002
C211	100mf 16V Type U	1513-0101-002
C212	.1mf 20% 12V BC-12	1502-0104-005
C213	undwd T101 500pf 10% 350V (mica)	1522-0501-002
C214	undwd T101 100pf 10% 350V (mica)	1522-0101-002
C215	undwd T101 100pf 10% 350V (mica)	1522-0101-002
C216	undwd L101 680pf 10% 350V (mica)	1522-0681-002
C217	25-280pf El-464 PC (trim)	1517-0000-038
C218	undwd T101 300pf 10% 500V (mica)	1522-0301-002
C219	55-30pf El-427 PC (trim)	1517-0000-007
C220	undwd t101 75pf 10% 500V (mica)	1522-0750-002
RESISTORS		
R201	15ohm 1W 10%	4701-0150-045
R202	15ohm 1W 10%	4701-0150-045
COILS		
L201	coil 9t	1801-3272-804
L202	coil 11t	1801-3407-801
L203	coil 5t	1801-3272-803
L204	choke .47uhy Wilco 201-11	1802-0478-006
L205	choke .47uhy Wilco 201-11	1802-0478-006
L206	choke assy	1803-3273-100
L207	choke assy	1803-3273-100
	bead ferrite (ref.L204,L205)	2502-0000-001

LOCATION	DESCRIPTION	PART NO.
L208	coil 5t	1801-3272-803
L209	coil 9t	1802-3272-804
L210	coil 7t	1801-3272-806
L211	coil 6t	1801-3272-802
T201	transformer, rf input	5602-3273-000
T202	transformer, rf output	5602-3272-900

PARTS LIST SWITCHBOARD

RESISTORS (all resistors are +10%¼W unless otherwise noted)

R101	res comp/film 330ohm ¼W5%	4701-0331-032
R102	res comp/film 330ohm ¼W5%	4701-0331-032
R103	4.7K	4701-0471-042
R104	3.3K	4701-0332-042
R105	1.8K	4701-0182-042
R106	150ohm	4701-0151-042
R107	100ohm	4701-0101-042
R108	180ohm	4701-0181-042
R109	100K	4701-0104-042
R110	100K	4701-0104-042

CAPACITORS

C101	not used	
C102	undwd T101 47pf 10% 500V (mica)	1522-0470-002
C103	undwd T101 47pf 10% 500V (mica)	1522-0470-002
C104	undwd T101 27pf 10% 500V (mica)	1522-0270-002
C105	undwd T101 27pf 10% 500V (mica)	1522-0270-002
C106	not used	
C107	not used	
C108	.001 mf +8-2% 50V YZ	1503-0102-003
C109	.001 mf +8=2% 50V YZ	1503-0102-003
C110	.001 mf +8-2% 50V YZ	1503-0102-003
C111	.001 mf +8-2% 50V YZ	1503-0102-003
C112	.001 mf +8-2% 50V YZ	1503-0102-003
C113	.001 mf +8-2% 50V YZ	1503-0102-003
C114	.01 mf +8-2% 50V YM	1503-0103-007
C115	.001 mf +8-2% 50V YZ	1503-0102-003
C116	.001 mf +8-2% 50V YZ	1503-0102-003
C117	.01 mf +8-2% 50V YM	1503-0103-007
C118	.001 mf +8-2% 50V YZ	1503-0102-003
C119	.001 mf +8-2% 50V YZ	1503-0102-003
C120	.01 mf +8-2% 50V YM	1503-0103-007
C121	.001 mf +8-2% 50V YZ	1503-0102-003
C122	.001 mf +8-2% 50V YZ	1503-0102-003
C123	.01 mf +8-2% 50V YM	1503-0103-007
C124	.01 mf +8-2% 50V YM	1503-0103-007
C125	.001 mf +8-2% 50V YZ	1503-0102-003
C126	tant 47mf 10V	1510-0470-001
C127	15 mf 16V Type U	1513-0150-002
C128	.001 mf +8-2% 50V YZ	1503-0102-003

LOCATION	DESCRIPTION	PART NO.
DIODES		
CR101	Silicon, IN4148	4805-1241-200
Cr102	Silicon, IN4148	4805-1241-200
CR103	Zener 9.1V 5% IN5999 BRL	4808-0000-028
CR104	Zener 9.1V 5% IN5999 BRL	4808-0000-028
CR105	Zener 5.1V 5% IN5993 BRL	4808-0000-030
CR106	Silicon rect IN4002	4806-0000-004
CR107	Cur rect MR 751	4806-3408-901
COILS		
L101	coil	1800-1314-400
L102	choke	1803-3269-400
T101	coil assy USWR	1800-3190-100
TRANSISTORS		
Q101	MPS A05	4801-0000-005
Q102	MPS A55	4801-0000-001
FUSE		
F201	fuse 25A 3AG 125V	5106-0000-012
INTEGRATED CIRCUIT		
IC101	IC MC1741 CPI	3130-3167-907
RELAY		
RL101	Relay Guardian 1335 P12/2DC	4500-3251-901
RL102	Relay	4500-3269-100

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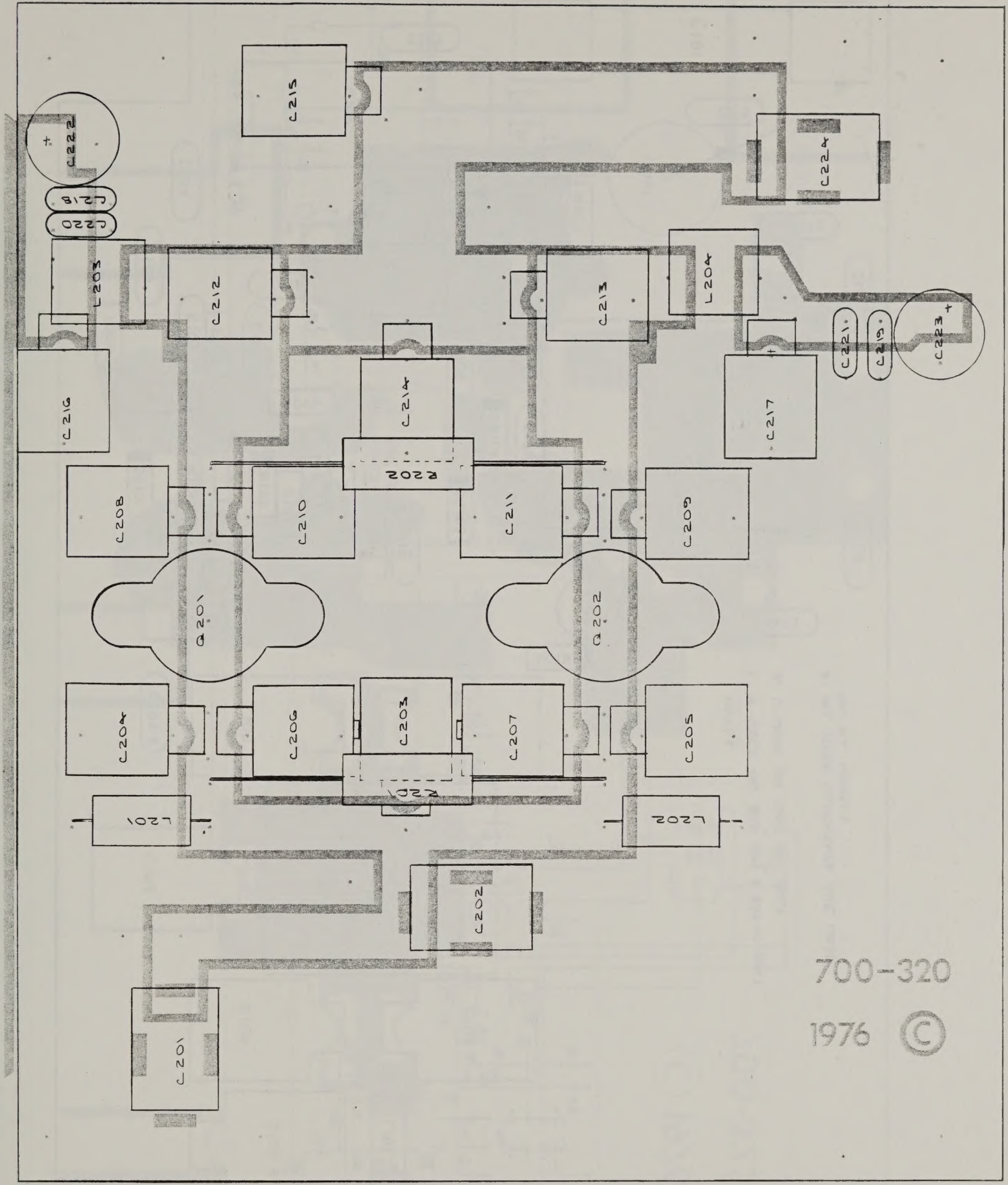

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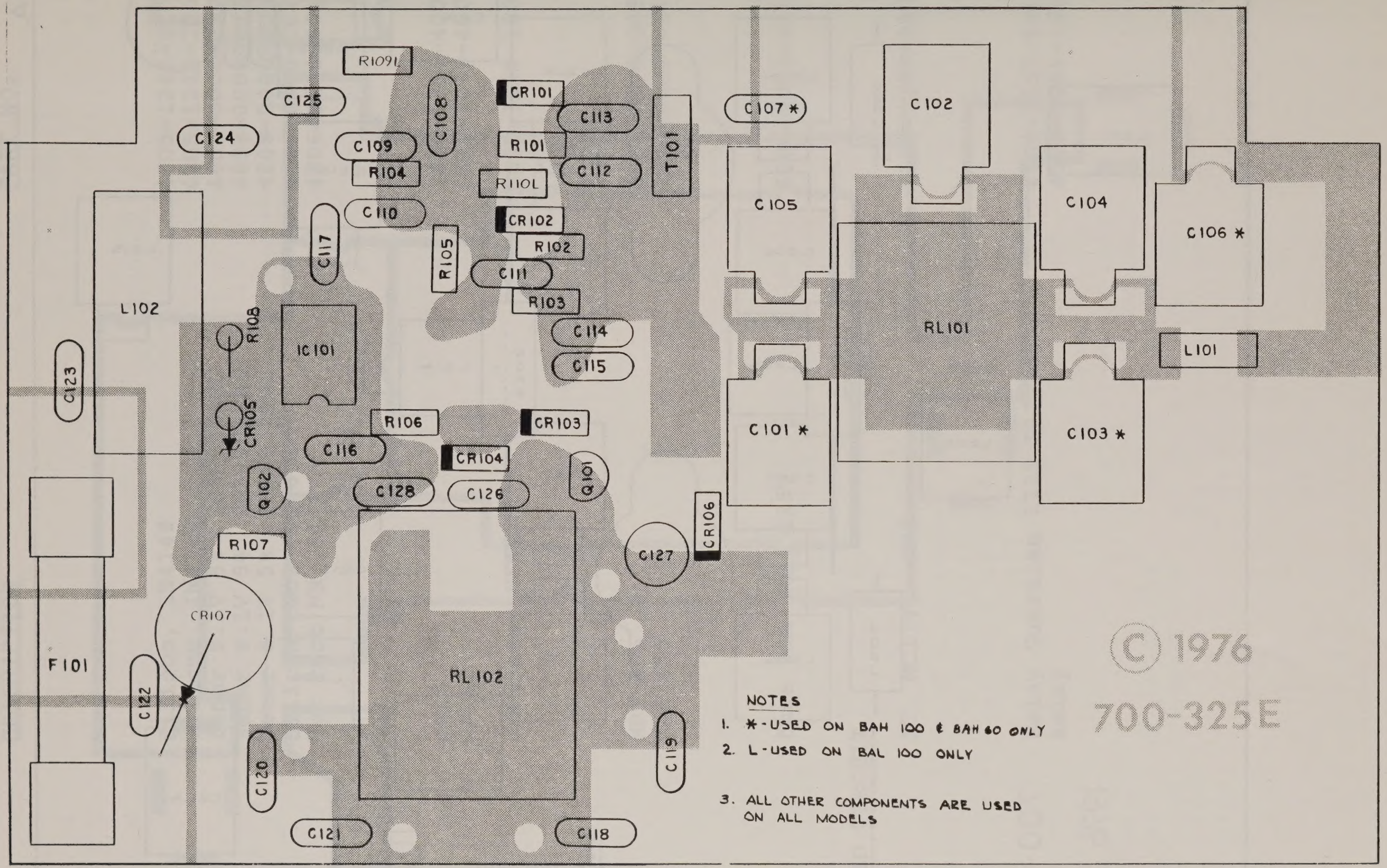

NOTES
1. ✱-USED ON BAH 100 & BAH 60 ONLY
2. L-USED ON BAL 100 ONLY

3. ALL OTHER COMPONENTS ARE USED ON ALL MODELS

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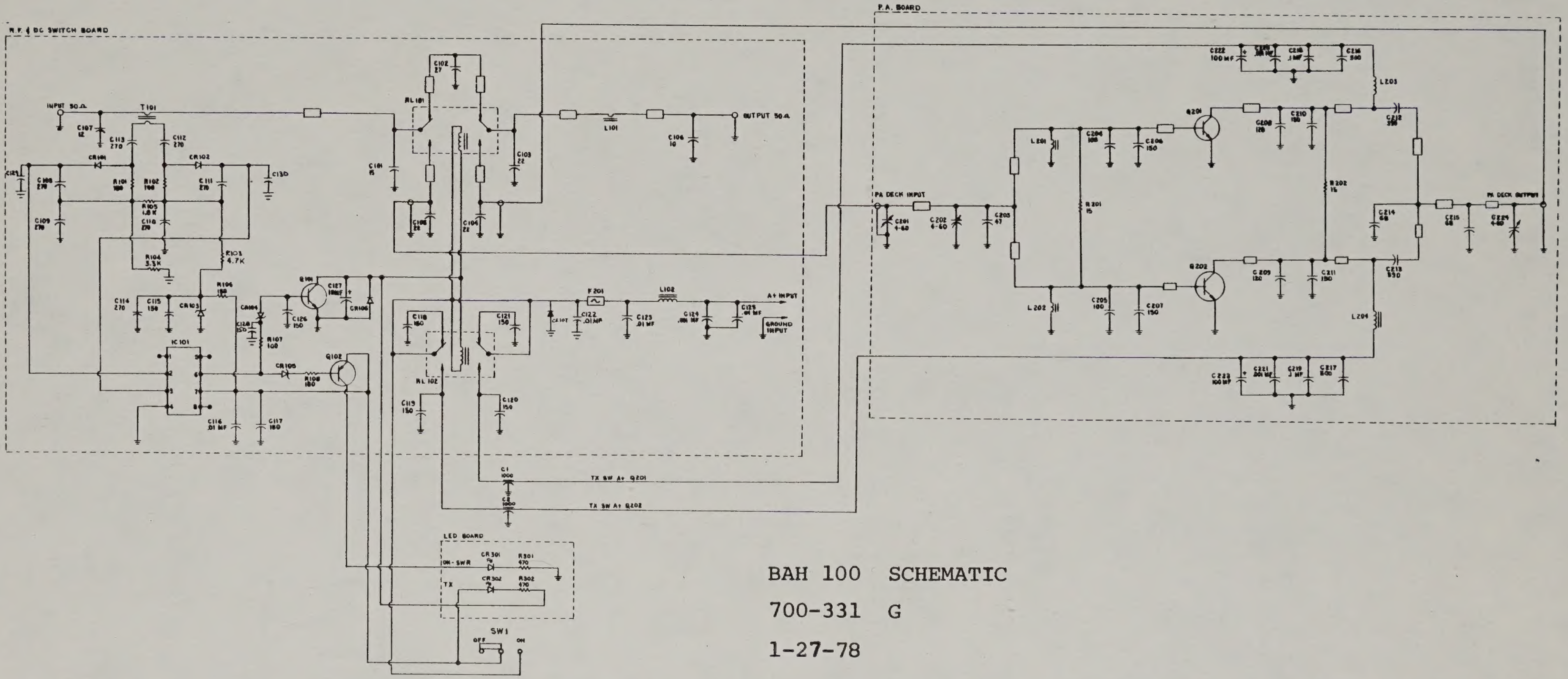

BAH 100 SCHEMATIC

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